

### Assembler Example:

The following is an example of the structure definition related to CPU status information concerning the CPU of the computing system. This structure definition is Type 4, offset 18h in the SMBIOS database and includes two grouped bit fields as a subset of a larger data structure, with bit 6 being a one bit grouped field and bits 2:0 representing the other grouped bit field. Specifically, bit 7 and bits 5:3 are reserved, while bit 6 is a first grouped bit field and bits 2:0 is a second grouped bit field. This is illustrated in Table 8.

Table 8	
Bits	Description
7	Reserved, must be 0
6	CPU Socket Populated 1 - CPU Socket Populated 2 - CPU Socket Unpopulated
5:3	Reserved, must be 0
2:0	CPU Status 0h - Unknown 1h - CPU Enabled 2h - CPU Disabled by User via BIOS Setup 3h - CPU Disabled by BIOS (Post Error) 4h - CPU is Idle, waiting to be enabled 5-6h - Reserved 7h - Other

```
10      dw    GROUPED_BIT_FIELD_ID      ; Data identifier
      db    "Status",0                  ; Field Description
      db    1                          ; Number of bytes occupied
      ; begin bit field encoding for this value
      db    6,6                        ; First group (start, end) bits
15      db    "CPU Socket Populated,"0  ; Group title
      db    00h, "No",0                ; Group values . . .
      db    01h, "Yes",0
      dw    GBF_END_GROUP              ; Signal end of this group
      db    2,0                        ; Next group (start, end) bits
20      db    "CPU Status,"0           ; Group title
      db    00h, "Unknown",0           ; Group values . . .
      db    01h, "CPU Enabled",0
      db    02h, "CPU Disabled by User (via setup)",0
      db    03h, "CPU Disabled by BIOS (Post Error)",0
```

db 04h. "CPU is Idle (waiting to be enabled)",0  
db 07h. "Other",0  
dw GBF\_END\_GROUP ; Signal end of this group  
dw END\_OF\_GROUPED\_BIT\_FIELD\_ID ; Signal end of grouped bit field

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## F. FREEFORM\_STRINGS\_ID

The FREEFORM\_STRING\_ID descriptor key is used to indicate that the field is a count for free-form strings at the end of the structure, such as Type 11 (OEM Strings) or Type 12 (System Configuration Options).

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Encoded Value: 0xFFF9

### Format

dw FREEFORM\_STRINGS\_ID  
db Null terminated string describing the above value

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### Notes:

Currently, there are only two structure types that use the FREEFORM\_STRINGS\_ID descriptor key, and essentially this key is the only entry in their structure definitions. When the utility program encounters this key, it knows that this byte offset within the SMBIOS structure represents the number of free-form strings.

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### Assembler Example:

dw FREEFORM\_STRINGS\_ID  
db "Free-form strings: OEM Strings",0

## 25 II. Process Control Keys

Each process control key is described below. For each key, the following information is provided: a description of the key, the encoded value designating the key, any sub-keys, and an example of use of the key. These keys are used to direct the utility program when retrieving information from structure definitions stored in the template file.

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### A. STRUCTURE\_HEADER\_ID

The STRUCTURE\_HEADER\_ID is a control key used to indicate the beginning of a structure definition. This key is used to indicate when the data begins and ends. For example, at the beginning of the structure definition in the template file, the

STRUCTURE\_HEADER\_ID is used to designate the beginning of the structure definition.

Encoded Value: 0xFFE0

Format

5 dw STRUCTURE\_HEADER\_ID  
(followed by structure header data, i.e., Type, Pointer to Title, etc.)

Assembler Example:

The following example illustrates the beginning portion of the structure definition  
10 in the template file for Type 0 SMBIOS database structures.

```

;-----;
;Type 0 Structure Definition
;-----;
15 dw STRUCTURE_HEADER_ID ; Start of structure identifier
   BIOS_INFOstart:
   db BIOS_INFO ; TYPE
   dw offset BIOS_INFOstring-offset BIOS_INFOstart
   dw offset BIOS_INFOfields-offset BIOS_INFOstart
   dw offset BIOS_INFodata-offset BIOS_INFOstart
20 BIOS_INFOstring:
   db "BIOS Information",0 ; Title string
   BIOS_INFOfields:
   db 05h, 08h, 09h, 00h ; Editable field offsets inside fixed header
   BIOS_INFodata:
25 ;-----;
   dw STRING_ID ; STRING identifier
   db "BIOS Vendor's Name",0 ; Field Description
   db "String indicating the name of the BIOS vendor.",0 ; Field Description
```

30 **B. ENDOF\_STRUCUTRES**

The ENDOF\_STRUCUTRES key is a control key used to indicate the end of the template file.

Encoded Value: 0xFFE1

35 Format:

dw ENDOF\_STRUCTURES